

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

PUBLICATION NUMBER : 59129730  
PUBLICATION DATE : 26-07-84

APPLICATION DATE : 18-01-83  
APPLICATION NUMBER : 58006161

APPLICANT : TOYOTA MOTOR CORP;

INVENTOR : OKADA YUJI;

INT.CL. : C21D 9/30 C21D 5/00 C21D 8/00 // C22C 37/00

TITLE : PRODUCTION OF HIGH STRENGTH CRANK SHAFT

ABSTRACT : PURPOSE: To improve strength and toughness by incorporating specific alloy elements in a crank shaft made of a spheroidal graphite cast iron, subjecting the shaft to an austemper treatment and further subjecting the fillet part of the pin and journal thereof to surface rolling.

CONSTITUTION: A crank shaft is cast of a spheroidal graphite cast iron contg. 3.0~4.5% C, 1.5~3.0% Si, 0.02~0.10% Mg, and further contg. 0.05~1.0% Mo, 0.1~0.7% Ni, 0.1~0.5% Cu and 0.2~1.2% Mn alone or in combination. The crank shaft is heated and held to and at 850~950°C for 0.5~3hr and right thereafter the crank shaft is subjected to an austemper treatment wherein the crank shaft is quickly cooled by dipping the same in a salt bath kept at 300~430°C and is held at said temp. for ≥1hr. The crank shaft is then machined according to need and thereafter the fillet part of the pin and journal of the crank shaft is subjected to surface rolling, whereby the strength and toughness of the crank shaft made of the cast iron are improved.

COPYRIGHT: (C)1984,JPO&Japio